

Date: Mon, 28 Jun 93 07:36:01 PDT
From: Info-Hams Mailing List and Newsgroup <info-hams@ucsd.edu>
Errors-To: Info-Hams-Errors@UCSD.Edu
Reply-To: Info-Hams@UCSD.Edu
Precedence: Bulk
Subject: Info-Hams Digest V93 #787
To: Info-Hams

Info-Hams Digest Mon, 28 Jun 93 Volume 93 : Issue 787

Today's Topics:

[ANS] Wanted: Simple,Cheap,2m antenna project
 Field Day
 Field Day. A bummer!
 Field Day: a bummer!
 How is Collins equipment ? (2 msgs)
MOTOROLA - FM TX/RX CHIPS - 420KHz OPERATION?
Need specs on Heath Phone Patch VU meter.
 RACES Bulletin #280
 vlf-konverter
Which are the present day "Good HF Rigs"

Send Replies or notes for publication to: <Info-Hams@UCSD.Edu>
Send subscription requests to: <Info-Hams-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Info-Hams Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/info-hams".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: Mon, 28 Jun 1993 10:55:33 GMT
From: swrinde!gatech!kd4nc!ke4zv!gary@network.UCSD.EDU
Subject: [ANS] Wanted: Simple,Cheap,2m antenna project
To: info-hams@ucsd.edu

In article <1642@arrl.org> zlau@arrl.org (Zack Lau) writes:
>In rec.radio.amateur.misc, gary@ke4zv.uucp (Gary Coffman) writes:
>>PVC is somewhat more lossy than some other plastics. One test
>>I've seen is to try it in the microwave oven. PVC melts, microwave
>>safe plastic dishes don't. However, either will melt on a stove.
>>So the difference is at least partially due to the difference in
>>RF absorption. I'd imagine it's frequency dependent to a degree.
>>I use PVC as standoffs for a gamma rod that matches my tower on

>>160 meters. It hasn't melted at legal limit power.

>

>So why don't you use microwave safe plastic dishes to make
>standoffs? Wouldn't this be the logical conclusion from
>your test results?

Not really, the plates are the wrong size and shape. :-)

>***Chart from an Al Bloom N1AL Posting

>>From "Reference Data for Radio Engineers", Ch 4, Table 19 --

>Characteristics of Insulating Materials:

>

>Dissipation factor:

	1 MHz	100 MHz	3 GHz
>Aluminum Oxide (ceramic)	.00033	.00030	.0010
>Iron-sealing glass	.0005	.0009	.00199
>Polystyrene	.00007	<.0001	.00033
>Polycarbonate	.010	-	-
>Polypropylene	<.0005	-	-
>Nylon	.0218	.0200	.0117
>Teflon	<.0002	<.0002	.00015
>Epoxy resin (Araldite CN-501)	.019	.034	.027
>Bakelite B M 120	.0280	.0380	.0438
>Butyl rubber	.0010	.0010	.0009
>Neoprene rubber	.038	.090	.034
>Douglas fir	.026	.033	.027
>Ruby mica	.0003	.0002	.0003
>Soil, loamy dry	.018	-	.0011
>100% Polyvinyl-chloride (PVC)	.0160	.0081	.0055

>

>Looks like you are right Gary, PVC losses tend to
>be pretty frequency sensitive--its a bit *worse* than
>might be predicted from the microwave oven test.

Yeah, that's interesting. (Thanks Al.) I note with interest that PVC is worse than dirt at the higher frequencies and that rubber and wood, and that our old friends Bakelite and epoxy are worse than PVC. Maybe we should make our PC boards out of dirt. Then we could really say our projects are cheap as dirt. :-)

>We should all keep in mind that a *broken* insulator is
>often worse than a lossy one. While a fraction of a dB
>may be statistically significant over the long term, you
>can often work more stations with a *reliable* station,
>than a marginally louder one.

Yes, there's often a tradeoff between reliability and performance

in many things, from car engines to microwave preamps.

>Given the electrical/mechanical tradeoffs, PVC is probably the
>best choice, followed by wood (which is even worse electrically!),
>assuming you don't have much in the way of tools/mechanical skills.
>
>Those with a good shop should probably consider using aircraft
>aluminum (which often requires a more complicated mechanical/electrical
>design to deal with a good conductor, as opposed to a convenient
>insulator). Unfortunately, switching from one to another (conductive/
>nonconductive booms) often requires changing the element lengths as well.
>Aluminum antennas tend to be a lighter and more rugged, due to the
>better mechanical properties of the material.

While limitations on tools and skills are an issue, I think one of the reasons that PVC and wood are commonly used is that they are easily available at the corner home improvement store while aircraft aluminum tubing is usually a special order item. I'm a nuclear certified welder and have a shop full of metalworking equipment, including heli-arc equipment, but I still use materials such as wood and PVC for non-critical projects because I can buy them over the counter on the spur of the moment. Of course I don't expect them to last forever, PVC embrittles under UV bombardment, and wood rots. If I were installing something in an inaccessible location, I'd use different materials. I originally used PVC schedule 80 pipe for the cross boom of my satellite array, but changed to the electrically worse fiberglass because of embrittlement problems.

Sometimes, such as the gamma rod spacers, there's no substitute for an insulator (quarterwave metal stubs are impractical because the spacing of the rod is important). I could have used glass, but that's rather fragile for a tower that's climbed frequently. PVC was "good enough". "Better" is often the enemy of "good enough". A smart designer knows how to trade off *all* the factors in his projects.

Gary

--

Gary Coffman KE4ZV		You make it,		gatech!wa4mei!ke4zv!gary
Destructive Testing Systems		we break it.		uunet!rsiatl!ke4zv!gary
534 Shannon Way		Guaranteed!		emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244				

Date: Mon, 28 Jun 1993 13:05:44 GMT
From: pipex!bnr.co.uk!corpgate!nrtpa038!harp@uunet.uu.net
Subject: Field Day
To: info-hams@ucsd.edu

Well I enjoyed Field Day. It was rather tiring for the gasping geezer but it was fun.

I had the other than 40meter CW station at N4NC at Cary NC. We made over 500QSOs. (The 40 meter CW station had near 1000.) I don't have the numbers on the SSB stations but they were real busy.

Our best band was 80 meters through the night. Propagation was poor on the upper bands. We had some QSOs on 15 and 17. I understand the SSB guys made some on 10. We never got around to trying 10 I guess.

A guy with a huge signal (Henry 2K) was complaining about us cluttering up the band. I told him our objective was to learn how to operate in adverse conditions. He was one of the adversities.

We used CT for logging this year. A few didn't want to use it but we managed to convince them to go along. It worked well.

Anyway part of it is getting a group to work together and just have fun doing it. I think we accomplished that with out a doubt.

```
*****
* Alan Harp K4PB      *      Bell-Northern Research      *      CW FOREVER      *
* mail: harp@bnr.ca  *      Research Triangle Park, NC  *
*****
```

Date: 28 Jun 93 12:19:25 GMT
From: news-mail-gateway@ucsd.edu
Subject: Field Day. A bummer!
To: info-hams@ucsd.edu

Wayne Cronin WA5VIF writes:

```
: Subject: Field Day: a bummer!
: To: info-hams@ucsd.edu
:
: I operated Field Day in class 1D (home station, commercial power) from
: here in Tempe, Arizona.
:
: Propagation, to put it nicely, STUNK!!!
:
: I only operated 6M and 10M, but listened on the other bands, and it
: seems like they had it no better.
:
: So, how about it folks? How did it go in other parts of the country?
```

We did pretty well on 15m in WMA as N1FCC.

--

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Date: 28 Jun 1993 13:53:27 GMT
From: usc!howland.reston.ans.net!darwin.sura.net!haven.umd.edu!cville-
srv.wam.umd.edu!ham@network.UCSD.EDU
Subject: Field Day: a bummer!
To: info-hams@ucsd.edu

> I operated Field Day in class 1D (home station, commercial power) from
> here in Tempe, Arizona.
>
> Propagation, to put it nicely, STUNK!!!
>
> I only operated 6M and 10M, but listened on the other bands, and it
> seems like they had it no better.

To be honest, last year I was in Ontario and was NF3I/VE3, and did
a lot of QSO's on 20 meters.

This year, I operated from the woods behind my house in Maryland, and
ran in the 1A-battery class.

High band propagation STUNK!

10 and 15 meters were BAD (1 QSO on 15 and none on 10 - little heard)
20 meters was almost as bad! (6 QSO's)

It seems as though we're getting into the bad part of the sunspot cycle.

I managed 105 QSO's on 40 and 27 QSO's on 80. Very strange - almost
nothing was heard from beyond Ohio/Indiana/Ontario. Very little was
heard from the southeast US. Nearly everything was from:

WPA/EPA
WNY/ENY
CT
WMA/EMA

VT
NH
ONT
OH
VA

And a couple from GA, NC, and WV. And this includes a re-positioning of the antenna, which was a sloper with the upper end at 75 feet.

Still, 119 contacts with 3.5 watts out from a few batteries was pretty exciting (CW only).

The thunderstorms were a bummer, though. Off air for 6 hours due to seemingly infinite amounts of lightning (and subsequent sleep...)

--

73,

----- The
 \ / Long Original
Scott Rosenfeld Amateur Radio NF3I Burtonsville, MD | Live \$5.00

WAC CW/SSB WAS 95% of the way to DXCC -----| Dipoles! Antenna!

Date: Mon, 28 Jun 1993 10:22:59 GMT

From: dog.ee.lbl.gov!overload.lbl.gov!agate!howland.reston.ans.net!gatech!kd4nc!
ke4zv!gary@network.UCSD.EDU

Subject: How is Collins equipment ?

To: info-hams@ucsd.edu

In article <1641@arrl.org> dnewkirk@arrl.org (Dave Newkirk) writes:

>In rec.radio.amateur.misc, gary@ke4zv.uucp (Gary Coffman) writes:

>

>[deletions]

>

>>The Drake twins, the T4X and R4C, were the competition to the Collins
>>S-line. They are also sturdy radios that operate well. *Their* innovation
>>of passband tuning is still a very useful receiver feature. They can

>

>[deletions]

>

>Not sure what the asterisks around *Their* are supposed to
>connote in this passage -- not, I hope, that Drake developed
>passband tuning, or that Drake developed so-called "electronic"
>passband tuning. As far as I know, Collins introduced passband
>tuning (in the 75A-4) by mechanically linking the BFO and main
>PTOs to keep received pitches the same while apparently moving

>selectivity around. This system works amazingly well, esp
>considering the possibility for misalignment.
>
>Drake later did passband tuning *another* mechanical hard way --
>by simultaneously tuning several 50-kHz IF circuits -- up through
>the R-4B, and in the 2-line.
>
>As far as I know, however, it was first Alvernaz (in "A Novel
>Side-Band Selector System," May 1958 *QST*) who described
>electronic passband tuning as we know it today: "scanning" an IF
>filter around by converting and deconverting the received signal
>with the same oscillator. But I agree that, as far as I know,
>Drake was the first to put electronic passband tuning into an
>Amateur Radio product (the R-4C). This how everyone who's doing
>*real* passband tuning -- moving a fixed bandwidth around without
>changing the pitch of received signals -- does it these days.
>
>If, by those asterisks, you're indirectly calling attention to
>a particular manufacturer's ongoing choice of using the term
>*passband tuning* to refer to a form a bandwidth adjustment by
>electrically scissoring the passbands of two filters, that's a
>change of subject in the sense that the two features cannot
>(fairly) be directly compared; each has its place when the going
>gets tough. But I can comment on the begged question: That it
>*is* an unfortunate nomenclature choice -- made for whatever
>reason -- because it confuses. And of course, whatever it's
>called, the misnamed feature itself is not an innovation, since
>Kenwood (at least) had electronically variable IF selectivity in
>an Amateur Radio product earlier (no later than the TS-830).

What I meant was that Drake was the first to combine a form of
IF shift with continously variable bandwidth adjustment in an
amateur radio. The two together are better from an operating
perspective than either alone. I'm amazed to hear you say that
the TS-830 pre-dated the Drake equipment. My 1A receiver was
circa 1961. I thought the TS-830 was a late 70s design that
post-dated even the R4C.

BTW, *I* think the misnomer is to call IF shift passband tuning.
Tuning connotes a pitch change to me, while shifting the filter
center does not.

Gary

--

Gary Coffman KE4ZV		You make it,		gatech!wa4mei!ke4zv!gary
Destructive Testing Systems		we break it.		uunet!rsiatl!ke4zv!gary
534 Shannon Way		Guaranteed!		emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244				

Date: 28 Jun 93 09:28:36 est
From: psinntp!arrl.org@uunet.uu.net
Subject: How is Collins equipment ?
To: info-hams@ucsd.edu

In rec.radio.amateur.misc, gary@ke4zv.uucp (Gary Coffman) writes:

>What I meant was that Drake was the first to combine a form of
>IF shift with continuously variable bandwidth adjustment in an
>amateur radio. The two together are better from an operating
>perspective than either alone. I'm amazed to hear you say that
>the TS-830 pre-dated the Drake equipment. My 1A receiver was
>circa 1961. I thought the TS-830 was a late 70s design that
>post-dated even the R4C.

Thanks for correcting me that Drake got passband tuning -- they call it *sideband tuning* -- into a radio before the 2 line. But the 1-A cannot continuously vary its bandwidth; its SIDEBAND TUNING control does not vary the width of the window, which is specified 2.5 kc wide at -6 dB and 8.1 kc wide at -60 dB. (The manual is right here with me as I type.)

None of Drake's amateur radios, at least those up through the 4 line, incorporated *continuously variable selectivity*. Not including the R-4C, Drake did selectivity adjustment by *step*-varying the coupling (and maybe, if necessary, tuning) of IF tuned circuits. The R-4C went to crystal filters circa at its circa-5.5-meg IF and did passband tuning by varying one oscillator that fed two mixers. That's electronic passband tuning.

But these radios did not allow continuous variation of IF selectivity, by "filter scissoring" or otherwise. I may be wrong about exactly which factory-made ham radio first included electronic (filter scissoring) bandwidth variation; I may even be wrong about which manufacturer first did it. But it wasn't Drake!

>BTW, *I* think the misnomer is to call IF shift
passband tuning. Tuning connotes a pitch change to me, while shifting the filter center does not.

I won't try to change your opinion. Collins introduced the term and the implementation; I defer to that. From my standpoint, tuning varies recovered-audio pitches only in the special case of nonsynchronous heterodyne reception. :-)

David Newkirk, Senior Asst Tech Editor | voice: 203-666-1541 X280
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Date: Mon, 28 Jun 1993 14:15:04 GMT
From: swrinde!gatech!hubcap!willisw.eng.clemson.edu!willisw@network.UCSD.EDU
Subject: MOTOROLA - FM TX/RX CHIPS - 420KHz OPERATION?
To: info-hams@ucsd.edu

In article <20esfd\$3hm@ds9.sim.es.com> hcooper@ds9.sim.es.com (Harrison Cooper) writes:

I'm interested in finding contacts at Motorola also, so if anyone responds, please either post or e-mail me also. Thanks

William L. (Bill) Willis, P. E. | e-mail: willisw@coe-nw.clemson.edu
Clemson University | FAX: (803) 656 - 0795
Division of Engineering Services | voice: (803) 656 - 5550
121 Freeman Hall | "I has seen the enemy, and he is us."
Clemson, SC 29634 - 0917 | Pogo

Date: Mon, 28 Jun 1993 12:12:15 GMT
From: swrinde!gatech!kd4nc!ke4zv!gary@network.UCSD.EDU
Subject: Need specs on Heath Phone Patch VU meter.
To: info-hams@ucsd.edu

In article <1993Jun27.151122.11893@schunix.dmc.com> kshus@schunix.dmc.com (Christopher Shustak) writes:

>
>I picked up a Heathkit HD 15 Hybrid Phone patch. The VU meter has been
>severely damaged, and I want to replace it with a new one. Fair Radio
>offers a number of reasonably priced vu meters, but I need to know the
>ma rating, the resistance and other such specs. Heathkit has not been
>helpful, nor do they stock spares. I don't want to end up spending \$20
>for the meter. Can anyone provide specs? Thanks Chris

A *standard* VU meter is a basic 30 ua movement, with a very specific damping characteristic, in series, either internally or externally, with a 3900 ohm resistor. Zero VU corresponds to 0.774596 volts across a 600 ohm load. In the Heath world, or in consumer/amateur gear in general,

the word "standard" seems unknown. So just where in any sensitive meter that will fit the hole and use resistor networks in series/shunt to give a pleasing reading.

Gary

--

Gary Coffman KE4ZV		You make it,		gatech!wa4mei!ke4zv!gary
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Lawrenceville, GA 30244				

Date: 28 Jun 93 14:11:00 GMT
From: news-mail-gateway@ucsd.edu
Subject: RACES Bulletin #280
To: info-hams@ucsd.edu

Bid : \$RACESBUL.280

TO: ALL EMERGENCY MANAGEMENT AGENCIES VIA AMATEUR RADIO
INFO: ALL RACES OPERATORS IN CA (ALLCA: OFFICIAL)
ALL AMATEURS U.S. (@ USA: INFORMATION)
FROM: CA STATE OFFICE OF EMERGENCY SERVICES (W6HIR @ WA6NWE.CA)
2800 Meadowview Rd., Sacramento, CA 95832
(916)262-1600
Landline BBS open to all: (916) 262-1657
RACESBUL.280 DATE: June 28, 1993
SUBJECT: OPS- Are YOU trained or untrained?

People sometimes get "fed up" with the idea of training. "Who needs it", is the phrase I hear from time to time from those outside of RACES. Well, we all benefit from it, but perhaps we need to paint a clearer picture of why, and its benefits.

In a comment by David Fowler regarding Fire Service response, the following appeared:

"I always want to know how a system is going to work under operator stress. My experience shows me that people work best under stress with those things they are most familiar with, and will reject new procedures, systems, etc., that are introduced during a stress period. Training is one way of making the unfamiliar familiar."

Let's repeat his last statement: Training is one way of making the unfamiliar familiar!

It reminds me of an incident message a few year back that involved a person whose name was long and difficult to spell. Let's say it was "Jwailicowski" for illustration and no offense

intended. Mr. J, lets call him, was an agency official, but a responding volunteer didn't know him nor had he heard the name before because he never really participated and attended training. During an emergency a two minute message came in. This particular volunteer spent four minutes getting the phonetic spelling on the one word name when he should have taken ten seconds. Had he belonged to the organization and attended its training --- which included familiarity with personnel --- he would have been familiar with Mr. J's name and could have simply written it out correctly after only hearing the name once. Instead, because of his lack of participation and training, he tied up the net for an excruciating four minutes that drove others to distraction.

Small potatoes? Well, maybe, but small potatoes grow into big plants that send out runners and shoots into many areas. So it is with lack of familiarization (training) of people, procedures and systems. Attend ANY opportunity for familiarization and orientation; you will never know what you missed if you don't attend!!

/signed/ Cary Mangum, W6WWW, State Chief Radio Officer

Remember: Out of sight is out of mind.

EOM

RACES Bulletins are archived on the Internet at ucsd.edu in hamradio/races and can be retrieved using FTP.

Date: Mon, 28 Jun 1993 11:45:10 GMT
From: usc!howland.reston.ans.net!gatech!kd4nc!ke4zv!gary@network.UCSD.EDU
Subject: vlf-konverter
To: info-hams@ucsd.edu

In article <53_1E000QQ471jj@aw27.aworld.aworld.de> carsten@aworld.aworld.de writes:

>i want to build a converter for vlf (50KHz - 150KHz) to any 'normal'
>shortwave-frequency.
>although i have experience with electronic circuits i do not know how
>to make such a converter.
>i hope somebody can help me.

The usual method is to use a regular crystal controlled converter with a 3.5 MHz LO crystal. That puts the VLF bands in the 80 meter band, and gives some relief from image problems of the BC band. You'll almost certainly want a selective preamp ahead of the converter.

This tends to be a bulky LC affair, but with the usual collection of random long wires, and the large number of VLF noise sources, it's almost mandatory.

Gary

--

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Lawrenceville, GA 30244				

Date: Mon, 28 Jun 1993 11:40:28 GMT
From: usc!howland.reston.ans.net!gatech!kd4nc!ke4zv!gary@network.UCSD.EDU
Subject: Which are the present day "Good HF Rigs"
To: info-hams@ucsd.edu

In article <1993Jun27.152157.4528@uoft02.utoledo.edu> mohan@tulip.es.utoledo.edu writes:

>In an article titled "Equipping your first ham station" in QST of July 1985,
>the author refers to the following as rigs which can serve well for a novice
>and technician. The rigs named are :

>
> Yaesu FT-101B, EE or E series
> Drake TR-3 or TR-4
> Kenwood TS-520
> Ten-Tec Tritron 4 and its successor
> Heath SB-100 or SB-101.
>

>So, my question is the above list was made in 1985. If someone made a list now
>what rigs will qualify in the same class. I need such info to choose a model
>as my first HF rig. I will summarize the responses to this newsgroup.

While the above listed rigs are still good radios, technology and time have marched on. Several of the listed rigs use tubes that are now becoming harder for the average Novice to find at the corner drugstore. (Remember tube testers at the local drugstore?)

I'd update the list to include more recent offerings, while noting that some of the newer rigs are actually inferior in one way or the other to those listed. The first generation of all solid state HF radios is suspect. There were many problems with overload, crossmod, and short final life.

Any of the Icom 700 series would be included, though some, like the 745, hold their programming in battery backed RAM and losing the battery means a trip back to Icom to be reprogrammed. Of course the Kenwood 800 series needs mentioning. The TS830 is still considered one of the finest HF radios

made, and the TS820 wasn't bad either. And TenTec has never made a really bad radio (though watch out for those Molex connectors, they corrode). In general, look for the previous generation of top of the line radios for good deals, but start looking at solid state radios due to the lack of new tube manufacture in the US. Even solid state radios can become problems, however, due to the use of proprietary chips or now obsolete transistors. In that regard, TenTec shines because they tend to use popular off the shelf parts, and factory support of older radios is excellent. A *late* serial number Drake TR7 could be a good choice, but these still claim a premium price from some hams. Avoid the early TR7s, they had lots of problems.

In new rigs, the hands down price/performance winner (IMHO) is the Icom 735. A used 735 would be an excellent purchase. Used TS940s and even used IC751s aren't bad deals either. Fortunately, there aren't many dog HF radios on the market anymore. Unfortunately, the same can't be said for VHF/UHF radios. There, sticking with older Icom gear, or new Alinco rigs is the way to go for base/mobile rigs. Avoid most Kenwood VHF/UHF offerings. They are plagued with a host of problems, not the least of which is poor thermal design. There are a host of HT offerings and most are servicable. The Yaesu FT470 is a real standout, however, due to it's good user interface and good price/performance. Generally, the really tiny radios, and those with extremely wide receive coverage, should be avoided. They suffer too many operational problems from high intermod to short battery life to really bizarre user interfaces. Stick with proven rigs like the IC2AT, IC4AT, IC32AT, and the like in older handhelds. Some will point you to Motorola HT220s and GE Mastr HTs, but they have little or no frequency agility, nor do they have TT pads. You can drive nails with them though.

Gary

--

Gary Coffman KE4ZV		You make it,		gatech!wa4mei!ke4zv!gary
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End of Info-Hams Digest V93 #787
